

A Comprehensive Update in the Evaluation of Pipeline Weld Defects

First Public Meeting

Duke Energy Building

5400 Westheimer Ct., Houston, TX 77056

11/05/2003

Minutes of the Meeting

I. Attendance

A total of 25 people attended the meeting. There were 2 from OPS and 11 from PRCI and its member companies.

	First Name	Last Name	Affiliation	Phone No.	E-mail address
1	David	Horsley	TransCanada Pipelines Limited	403/920-6502	david_horsley@transcanada.com
2	Gary	Perkins	Shell SIEP	281-544-3330	Gary.Perkins@shell.com
3	Jim	Merritt	OPS	303-683-3117	James.Merritt@rspa.dot.gov
4	Keith	Leewis	PRCI	703/387-0190 x 103	kleewis@prci.org
5	Geoff	Rogers	PRCI/Duke	713-627-6396	gbrogers@duke-energy.com
6	Yong-Yi	Wang	Emc2	614-459-3200	ywang@emc-sq.com
7	Jim	Ibarra	BP	281-366-3170	ibarraj@bp.com
8	Robert	Gatlin	DNV	(281) 721-6600	Robert.Gatlin@dnv.com
9	Chad	Zamarin	PRCI/Panhandle	713-989-7476	cjzamarin@panhandleenergy.com
10	Doug	Fairchild	ExxonMobil URC*	713-431-4722	doug.p.fairchild@exxonmobil.com
11	Pedro	Vargas	ChevronTexaco	510-242-5429	PedroVargas@ChevronTexaco.com
12	Cliff	Petersen	ExxonMobil	713-431-6561	cliff.w.petersen@Exxonmobil.com
13	Frans	Terhoeve	Heerema Marine Contractors	31-6-5376 5692	fterhoeve@hmc-heerema.com
14	Pete	Sandy	Marathon Oil	(713) 296-3102	pasandy@marathonoil.com
15	Rick	Odegard	RTD Quality Services	832.295.5010	rodegard@rtdquality.us
16	Serghios	Barbas	ExxonMobil	(713) 431-7285	serghios.t.barbas@exxonmobil.com
17	Mark	Werner	RTD Quality Services	832.295.5011	mwerner@rtdquality.us
18	Marie	Quintana	Lincoln Electric	(216) 383-2114	Marie_Quintana@lincolnelectric.com
19	Michael	Moles	R/D Tech	416 831 4428	michael.moles@rd-tech.com
20	Chris	McLaren	OPS-Southwest Region	713-718-3746	chris.mclaren@rspa.dot.gov
21	David	Culbertson	El Paso Corporation	281-765-4809	david.culbertson@elpaso.com
22	Godfried	Dekeyser	Pioneer Natural Resources USA	713 444 5169	dekeyseg@pioneerncr.com
23	Alexander	Shpunt	Global Industries, LLC	337 583 5409	alexanders@corp.globalind.com
24	John	McCarron	API Standard 1104	7139742455	ikmccarron@att.com
25	E. L.	Von Rosenberg	Materials and Welding Tech	7132662188	tinyvonr@aol.com

II. Agenda

The meeting agenda was as follows.

1. Overview of the meeting, Geoff Rogers, Duke Energy/PRCI
2. PRCI Perspective of the Project, David Horsley, TransCanada/PRCI
3. Project background, Yong-Yi Wang, Emc²
4. Planned work scope, Yong-Yi Wang, Emc²
5. API 1104 committee perspective on the project, Robert Gatlin, API 1104/DNV
6. Discussion
7. Future meeting plan

The attendees spent most of their time on agenda items 3, 4, and 6. The viewgraphs of the agenda items 1, 2, 3, and 4 are attached to this minutes. These agenda items are not elaborated further in this minutes. The highlights of the meeting are summarized below.

III. Highlights of the Meetings

1. Mr. Jim Merritt clarified that the DOT funding of the project is based on the recommendation of proposal reviewers from several government agencies and industry representative, not just DOT staff.
2. Staff from ExxonMobil liked to add its X120 material to the test matrix. They expressed willingness to donate its X120 materials to the project.¹
3. Some expressed desire to keep the assessment procedure format open in order to accommodate future development of materials, welding processes, and other technologies. Dr. Wang indicated that an open format usually means flexibility in applying the developed assessment procedure. Certain level of technical proficiency is needed to apply the procedure correctly. This may be feasible for companies that have the technical resources. On the other hand, a baseline procedure may be necessary for companies that do not have the technical resources or those that do not see the need for sophisticated analysis.

In order to have a baseline procedure and a more open and flexible procedure, the document will have to be structured in a two-tier approach. Tier 1 could be the simple procedure that covers majority of the construction projects. Tier 2 could be the flexible procedure that includes more variables than the Tier 1 approach. There is a cost impact on making this two-tiered approach.

4. Some suggested the inclusion of X80 in the test matrix. To include X80 in the test matrix, the availability of the material and cost impact will need to be assessed.
5. Mr. Terhoeve questioned why fatigue is not included in the work scope. Dr. Wang explained that the fatigue analysis procedure in the current API 1104 Appendix A is used as a prescreening tool. It has no direct impact on the defect acceptance level. Fatigue is generally not a concern for girth welds in most onshore pipelines. However, fatigue often plays a critical role in the determination of defect acceptance criteria in offshore pipelines. The budgetary and work scope consideration has precluded the development of fatigue evaluation procedure as part of this project.
6. There were discussions about essential variables in weld procedure qualifications. In the context of girth weld ECA (Engineering Critical Assessment), the essential variables are those that have substantial impact on the mechanical properties that are used as inputs to determine the defect acceptance levels. For instance, toughness is an input in determining the defect acceptance level. Any parameters that can substantially affect the toughness are essential variables.

¹ Discussion has been under way between the project team and ExxonMobil to determine the extent and nature of sharing the data generated by ExxonMobil. The X120 material was not part of the planned work scope at the start of this project. The inclusion of X120 testing will depend on the availability of additional funds from DOT.

7. Mr. David Horsley emphasize that implementing the developed assessment procedure in relevant code bodies will require active participation of the relevant industries.
8. Mr. Robert Gatlin noted that the members of the API 1104 Fracture Mechanics subcommittee have many years of experience in pipeline welding.
9. There were extensive discussions on the need of this work and the conservatism of the current API 1104 Appendix A. The need for this work is addressed in agenda Item 3. Based on historical literature since early to mid-1980's and more recent work, the degree of the conservatism of the current Appendix A has been called into question when all of the following conditions exist simultaneously: (1) high Y/T materials, (2) large diameter pipes, (3) applied strain at the high end of the allowed longitudinal strain range, and (4) the actual acceptance criteria applied in the field were as large as those allowed by the code. The instances of all those four conditions existing in current pipelines are probably quite low, particularly for onshore pipelines in U.S where the use of the alternative acceptance criteria is limited to recent years. For offshore pipelines, the acceptance criteria of some companies are much more stringent than those allowed under the current Appendix A. However, it should be recognized that the use of the alternative acceptance criteria is receiving wider acceptance and some newer pipelines are moving towards those conditions, i.e., high Y/T materials, large diameters, and high longitudinal strains. Therefore alternative acceptance criteria that incorporate those new realities are the focus of this project.
10. Mr. Jim Merritt indicated that additional DOT funding may be available if the expansion of the work scope is justified and supported by the industry.²

IV. Future Meeting Plan

No date was set for the future meetings. The current project plan calls for two meetings a year. The format and date of the future meetings will be determined after the project team meets with PRCI Materials Technical Committee and API 1104 committee in January 2004.³ The participants of this meeting will be informed of future meetings when appropriate information becomes available.

² Based on the discussion at the meeting, the project team is working on a list of additional tasks for consideration of additional funding by DOT.

³ Information on "API/AGA Joint Committee on Oil and Gas Pipeline Welding Practices" meeting may be found in the following link.

http://api-ep.api.org/training/index.cfm?objectid=A44FAEF3-C5EA-4C86-A6D5E3686DFEFA6B&method=display_body&er=1&bitmask=00200500100000000